

Patent Claims

What is claimed is:

1. A manually actuated pump sprayer adapted to be mounted on a container of liquid to be sprayed upon pump actuation, said pump sprayer comprising:
a plunger head having a side wall containing a discharge orifice, said plunger head being reciprocable along a generally longitudinal axis of said pump sprayer against a predetermined biasing force provided by a spring;
an overcap disposed on said plunger head and being independently rotatable relative to said plunger head, said overcap having a side wall overlying said discharge orifice in a condition of non-use, said side wall having an opening disposable in alignment with said discharge orifice upon rotation of said overcap relative to said plunger head; and
a container closure for affixing said plunger head and said overcap to the container, said plunger head being axially reciprocable relative to said container closure when in a first orientation and being axially restrained relative to said container closure when in a second orientation.
2. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one engagement means movable relative to said container closure when in said first orientation for permitting axial reciprocation of said plunger head relative to said container closure.
3. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one ridge disposed on an inner surface of said side wall thereof, said ridge being disposable in a complementary slot on said container closure when in said first orientation for permitting axial reciprocation of said plunger head relative to said container closure.
4. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one engagement means restrainable relative to said container closure

when in said second orientation for preventing axial reciprocation of said plunger head relative to said container closure.

5. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one ridge disposed on an inner surface of said side wall thereof, said ridge being contiguously disposable against a detent on said container closure when in said second orientation for preventing axial reciprocation of said plunger head relative to said container closure.

6. The manually actuated pump sprayer according to claim 5, wherein said detent includes a sloped top surface such that as said plunger head is rotated from said first to said second orientation, said ridge slides against said top surface and axially shifts said plunger head away from said container closure to prevent axial reciprocation of said plunger head relative to said container closure.

7. The manually actuated pump sprayer according to claim 6, wherein said container closure includes a concave catch member into which said ridge snap fits for locking said plunger head relative to said container closure.

8. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one first means engageable with a complementary second means on said overcap for enabling attachment of said overcap onto said plunger head.

9. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one groove on an outer surface of said side wall thereof, said groove being engageable with a complementary ridge on an inner surface of said side wall of said overcap for enabling attachment of said overcap onto said plunger head.

10. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one first means engageable with a complementary second means on said overcap for limiting rotation of said overcap relative to said plunger head.

11. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one groove on an outer surface of said side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on an inner surface of said side wall of said overcap for limiting rotation of said overcap relative to said plunger head.

12. The manually actuated pump sprayer according to claim 1, wherein one of said plunger head and said overcap includes at least one groove on said side wall thereof, said groove being engageable with a complementary ridge on said side wall of the other of said plunger head and said overcap for enabling attachment of said overcap onto said plunger head.

13. The manually actuated pump sprayer according to claim 1, wherein one of said plunger head and said overcap includes at least one groove on said side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on said side wall of the other of said plunger head and said overcap for limiting rotation of said overcap relative to said plunger head.

14. The manually actuated pump sprayer according to claim 1, wherein said plunger head includes at least one groove on an outer surface of said side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on an inner surface of said side wall of said overcap for limiting rotation of said overcap relative to said plunger head, said groove further having first and second ends, wherein when said ridge is disposed against said first end, said discharge orifice is disposed in said non-use condition, and when said ridge is disposed against said second end, said discharge orifice is aligned with said opening.

15. A manually actuated pump sprayer comprising:
a plunger head including a discharge orifice and being reciprocable relative to said pump sprayer;
an overcap disposed on said plunger head and being rotatable relative to said plunger head, said overcap overlying said discharge orifice in a condition of non-use and including an opening disposable in alignment with said discharge orifice in a condition of use; and
a container closure for affixing said plunger head and said overcap to the container, said plunger head being axially reciprocable relative to said container closure when in a first orientation and being axially restrained relative to said container closure when in a second orientation.
16. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one engagement means movable relative to said container closure when in said first orientation for permitting axial reciprocation of said plunger head relative to said container closure.
17. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one ridge disposed on an inner surface of a side wall thereof, said ridge being disposable in a complementary slot on said container closure when in said first orientation for permitting axial reciprocation of said plunger head relative to said container closure.
18. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one engagement means restrainable relative to said container closure when in said second orientation for preventing axial reciprocation of said plunger head relative to said container closure.

19. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one ridge disposed on an inner surface of a side wall thereof, said ridge being contiguously disposable against a detent on said container closure when in said second orientation for preventing axial reciprocation of said plunger head relative to said container closure.

20. The manually actuated pump sprayer according to claim 19, wherein said detent includes a sloped top surface such that as said plunger head is rotated from said first to said second orientation, said ridge slides against said top surface and axially shifts said plunger head away from said container closure to prevent axial reciprocation of said plunger head relative to said container closure.

21. The manually actuated pump sprayer according to claim 20, wherein said container closure includes a concave catch member into which said ridge snap fits for locking said plunger head relative to said container closure.

22. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one first means engageable with a complementary second means on said overcap for enabling attachment of said overcap onto said plunger head.

23. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one groove on an outer surface of a side wall thereof, said groove being engageable with a complementary ridge on an inner surface of a side wall of said overcap for enabling attachment of said overcap onto said plunger head.

24. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one first means engageable with a complementary second means on said overcap for limiting rotation of said overcap relative to said plunger head.

25. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one groove on an outer surface of a side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on an inner surface of a side wall of said overcap for limiting rotation of said overcap relative to said plunger head.

26. The manually actuated pump sprayer according to claim 15, wherein one of said plunger head and said overcap includes at least one groove on a side wall thereof, said groove being engageable with a complementary ridge on a side wall of the other of said plunger head and said overcap for enabling attachment of said overcap onto said plunger head.

27. The manually actuated pump sprayer according to claim 15, wherein one of said plunger head and said overcap includes at least one groove on a side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on a side wall of the other of said plunger head and said overcap for limiting rotation of said overcap relative to said plunger head.

28. The manually actuated pump sprayer according to claim 15, wherein said plunger head includes at least one groove on an outer surface of a side wall thereof, said groove having a predetermined length and being engageable with a complementary ridge on an inner surface of a side wall of said overcap for limiting rotation of said overcap relative to said plunger head, said groove further having first and second ends, wherein when said ridge is disposed against said first end, said discharge orifice is disposed in said non-use condition, and when said ridge is disposed against said second end, said discharge orifice is disposed in said use condition.